Less ankle radiographs in the paediatric population

**Background:** Acute ankle injury is a common presentation among children in the emergency department. There is a fear of missing serious injury among doctors and there is often an expectation of parents and patients that a radiography will be performed. The Ottawa ankle rules (OAR) reduce the need for radiographs in an adult population, but when applied to children would result in many radiographs as a result of unwillingness to wait for a repeat examination. The authors postulated that in children with clinical findings restricted to distal fibula, lateral ligaments or both, radiographs would not influence acute management. The study aimed to identify those patients in this group who had fractures with a risk of serious complications.

**Method:** Children aged between 3 and 16 years with isolated ankle fractures were recruited. Exclusion criteria included those with pre-existing musculoskeletal disease, coagulopathy, developmental delay or recent surgery/injury to the same ankle. Instruction in examination of ankles was given and a standard sheet for reporting clinical findings was prepared. Follow up occurred in an orthopaedic clinic or by telephone. "Low risk" examination findings were tenderness confined to distal fibula or lateral ligaments. "High risk" examination findings were other ankle injuries, including those with a history of unusual mechanism or force. "Low risk" diagnoses included sprains, contusions, avulsion fractures, and non-displaced Salter-Harris I and II fractures. All other fractures were "high risk".

**Results:** 1017 patients with acute ankle injury were seen and of these 281 were enrolled. A total of 381 had low risk examinations and 226 had high risk findings. None of the 381 with low risk examinations had high risk diagnoses, giving a negative predictive value of low risk examination for low risk diagnosis 100% (95% CI 99.2 to 100). Altogether 45 of the 226 with high risk examination had a high risk diagnosis. A total of 573 (89%) patients would not have undergone radiographs under OAR with 463 having normal radiographs. Altogether 345 (64%) had low risk examination and this would have reduced the number of radiographs by 62.8% compared with 12% by OAR. Eight children with Salter Harris I fractures in the low risk group had symptoms at four months but at one year, the seven that remained under follow up were pain free.

**Conclusion:** No children with acute ankle injury and isolated clinical findings to the distal fibula below the level of the joint line or adjacent lateral ligament had a subsequent high risk diagnosis. This would reduce the number of radiographs performed by 63%.

**Comment:** The authors have tackled a problem that affects emergency medicine practice both clinically and financially. A large number of children attend with isolated ankle injuries and require a radiograph as a result of the application of the OAR and because of their inability to weight bear. This results in a delay for patients in the department with the resultant effect on service provision to other patients, overuse of radiographs in a young population, and a drain on financial resources. The study suggests a method to streamline and improve our management of these patients and reduce the use of radiographs in this population. The difficulty in adopting this into practice is the level of expertise required in examining ankle joints in children. The authors accept that this may be a problem in translating this into the practice of departments elsewhere.

**More bad news for plaster of Paris!** The traditional treatment (comprising immobilisation in a plaster of Paris) of torus (buckle) fractures of the distal radius in children is further challenged in this prospective randomised trial. The authors randomised 201 patients to receive either immobilisation in a plaster of Paris or in a “Futura-type” wrist splint. All children were judged to have made a good recovery, with only one patient not tolerating the splint (which was replaced with a plaster). The authors do not provide full details of the results, but from the information presented, they argue that both plaster of Paris and follow up beyond the second day are unnecessary.

**Quick access to senior advice in the future?** As emergency medicine aspires towards a consultant led service, it may be an idea to consider the example set by the level I trauma centre at the University of Vermont. Four community hospitals with no dedicated trauma surgeons were equipped with teledicine links to the trauma centre and the trauma centre at the university. Consultations were achieved via cameras and microphones in the trauma room and linked to the trauma centre or to the homes of the trauma surgeons. Of 26 teledicine consultations over eight months, two were considered to be life saving. Eight per cent of the referring surgeons felt that the link had improved care of the patients. In the UK setting it could be applied to permit the duty consultant at home to offer advice on medical and trauma cases passing through the resuscitation room out of hours to improve care.

**Back seat drivers!** A recent letter in the *Lancet* highlights the risk to front seat occupants from rear seat passengers in road traffic collisions. The importance of eliciting the use of seatbelts in front seat casualties is well recognised, but too often the presence of rear seat passengers and whether or not they were restrained is overlooked. The authors found a fivefold increase in risk of death in front seat occupants from unbelted rear seat passengers. The combined risk of death and severe injury was raised twofold for belted drivers and threefold for unbelted front seat passengers. The authors concluded that almost 80% of deaths in front seat occupants could have been avoided. Despite some potential problems with the analysis, the data presented add powerful weight behind the arguments for the use of rear seat restraints.
Atrial fibrillation: resistant to change  The management of atrial fibrillation has altered much less over time than that for other arrhythmias. This seminar provides an overview of the condition, covering the epidemiology, pathophysiology and medical and surgical management (including recent advances in diagnosis and therapy). The treatment algorithm outlines the current guidelines and provides an ongoing framework for inpatient and outpatient management strategies. In the future, the emphasis will shift to curing patients where possible using newer techniques described while emphasising the continued importance of reducing mortality and morbidity by anticoagulation. This comprehensive review is easy to read and provides a vision for the future.


Reperfusion therapy: a fair deal for all?  National guidelines focus upon a short needle to door time, but are all those eligible for thrombolysis receiving it at all? This international, multicentre study looked at 1763 patients who presented within 12 hours of symptoms with ST elevation due to myocardial infarction. The study found that 50% of patients eligible for reperfusion did not receive it. The subpopulations least likely to undergo reperfusion therapy were those with previous congestive cardiac failure, coronary bypass surgery and those presenting without chest pain but other ischaemic symptoms. Also disadvantaged were women, the elderly and patients with diabetes or previous myocardial infarction. The old message underlining the importance of recognising and treating myocardial infarction is worthy of repetition.


Dentures: not only an airway risk!  This case report highlights the potential problems in the administration of buccal glyceryl trinitrate. A 66 year old with chest pain failed to respond to the administration of two buccal tablets by paramedics and subsequently suffered a cardiac arrest at hospital. Resuscitation was unsuccessful and during intubation, it was noted that the tablets had become adhered to the upper denture, thereby reducing the surface area for absorption.


Re-evaluation of old data on acute stroke treatment  This study used data collected in a previous randomised controlled trial (NIHNS Stroke Trial). The analysis supported treatment of eligible patients (no intracranial haemorrhage) with acute stroke, even in the presence of early ischaemic change on CT scan. The results were drawn from a blinded, retrospective analysis of high quality evidence. The rate limiting factor preventing widespread implementation in UK practice might be 24 hour rapid access to CT and its authoritative interpretation.


Further support for the injured elderly  This paper tested the validity of old age (age over 70 years) as an independent criterion for trauma team activation. Data were acquired retrospectively from the trauma registry of a US trauma centre. A comparison was made between those elderly patients who met the centre’s trauma team activation (TTA) criteria and those who did not, with respect to mortality, need for intensive care admission, and non-orthopaedic surgical procedures. Sixty three per cent of patients with severe injuries (ISS>15) and 25% of patients with critical injuries (ISS>30) did not meet the physiological criteria for TTA. Almost one in four patients in those not eligible for TTA had either a non-orthopaedic surgical procedure or an intensive care admission. The overall mortality in this group of “stable” patients was 16%. While acknowledging the need for relevant prospective studies, the authors suggest that age over 70 years deserves to be considered an independent criterion for trauma team activation.


Increasing role for cervical spine CT after trauma  This prospective study of injured patients with altered mental status showed, as expected, that CT of the upper cervical spine was capable of identifying more injuries than plain radiographs. CT also revealed other injuries (9% in this series). These findings were used to justify an increasing role for CT in clearing the upper cervical spine after trauma. The possible benefits of an increasing role for CT in this situation do need to be weighed against increased radiation and cost and the danger in transporting a critically injured person to a CT facility situated elsewhere.


Beware the airway burns!  The authors report a case of a patient who presented with difficulty in breathing and swallowing. A history of smoking crack cocaine and taking ecstasy was elicited. On examination, the patient had stridor and a hoarse voice. The main finding was a grossly swollen anteverted uvula with oedema of nasopharynx extending to the epiglottis. This is the latest report of thermal injury resulting from the use of crack cocaine. Clinicians need to suspect this in drug users who present with upper airway swelling.


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